BRITISH COLUMBIA
MINISTRY OF FORESTS

Tree Farm Licence 5

Weldwood of Canada Ltd.

Rationale for Allowable Annual Cut (AAC) Determination

Effective January 1, 2003

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Objective of this Document

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act* (the Act), of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 5. This document also identifies where I believe new or better information is needed for incorporation in future determinations.

Critical Issue: mountain pine beetle epidemic

TFL 5 forms part of a vast area in central British Columbia that is experiencing a mountain pine beetle (MPB) epidemic unprecedented in its severity and extent. This devastating epidemic overwhelms all other factors in this determination. I have documented my considerations regarding management objectives for the control and salvage of the damage done by beetles under section 8(8)(e) of the *Forest Act: Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.*

Although, I have reviewed the other factors and have given them due consideration, the only other factor that will be discussed in detail in this rationale is "First Nations considerations".

Description of the TFL

TFL 5, held by Weldwood of Canada Ltd. ('the licensee'), is 34 221 hectares in size located 40 km north of the city of Quesnel along the Fraser River.

The TFL consists of two main landforms—the Fraser River escarpment and the interior plateau. The escarpment is characterized by steep slopes, gullies and ridges intermixed with small benches creating a patchwork of small, distinct habitats often dominated by Douglas-fir. The plateau is characterized by rolling terrain with moraine and organic deposits and is dominated by Lodgepole pine and Engelmann spruce. Although present, across the plateau Douglas-fir only dominates stands on drier ridges with southern exposure.

According to the provincial ecological classification, the TFL lies within two subzones of the Sub-Boreal Spruce zone—the moist hot (SBSmh) and the moist warm (SBSmw). The SBSmh dominates the Fraser River escarpment and the SBSmw includes the interior plateau. The SBS is characterized by warm, moist summers and snowy winters. Peak precipitation occurs in early summer and early winter, and approximately 50 percent of the precipitation falls as snow.

Productive forest comprises 32 847 hectares of the TFL and in deriving the assumed timber harvesting land base, 3 513 hectares of productive forest was excluded due to non-commercial brush, moose calving habitat, riparian reserve and riparian management zones, terrain instability, deciduous stands, and wildlife tree patches. The resultant current Timber Harvesting Land Base (THLB) is 29 334 hectares.

History of the AAC

In 1950, Forest Management Licence 5 was issued to Western Plywood Ltd. In 1964, the licence, now known as TFL 5, was transferred and reassigned to Weldwood of Canada Ltd., the present licence-holder. Nine Management Plans have subsequently been in place since 1950. I have now approved Management Plan (MP) No. 10, covering the period January 1, 2003 to December 31, 2007.

The original AAC for TFL 5 was 42 475 cubic metres. In 1956 the AAC was increased to 70 792 cubic metres as a result of improved inventory data and a reduction in rotation age from 150 years to 130 years. Another significant historical increase occurred in 1970; the AAC increased from 87 782 to 124 594 cubic metres to reflect improved utilization of logged trees. The AAC peaked in 1975 when it was again increased to 134 788 cubic metres . This AAC was progressively reduced during the next three determinations; from 1987 to 1997 the AAC remained constant at 110 000 cubic metres.

The current AAC of 122 800 cubic metres includes a 1 500 cubic metre partition for deciduous volume. Of the total AAC, 117 346 cubic metres has been allocated to Weldwood of Canada Ltd and the remaining 5 454 cubic metres has been allocated to the Small Business Forest Enterprise Program.

New AAC determination

Effective January 1, 2003, the new AAC for TFL 5 will be 300 000 cubic metres, an increase of 144 percent from the previous AAC. The purpose of this increase is to provide the licensee with sufficient AAC to mitigate losses due to the current MPB epidemic.

This AAC will remain in effect until a new AAC is determined, which must take place within five years of this determination, unless in the meantime a decision is explicitly made under authority of the *Forest Act* to postpone the date of the next determination.

Information sources used in the AAC determination

Information considered in determining the AAC for TFL 5 includes the following:

- *Management Plan 10, Tree Farm Licence 5, Period 2002-2007.* Weldwood of Canada Ltd., Quesnel Woodlands Operation, approved January 31, 2003.
- *Weldwood of Canada Ltd., MacKenzie-Cariboo Tree Farm Licence (TFL 5), Management Plan 10, Timber Supply Analysis Information Package*, accepted April 12, 2002
- Existing stand yields, accepted May 2, 2002
- Managed stand yields and site index values accepted February 25, 2002
- *Yield Tables for Natural and Managed Stands: Management Plan 10 on TFL 5.* J.S. Thrower & Associates Ltd., dated February 6, 2002
- *Weldwood of Canada Ltd., MacKenzie-Cariboo Tree Farm Licence (TFL 5), Management Plan 10, Timber Supply Analysis*, August 16, 2002
- TFL 5, Management Plan 10, Twenty-year Plan, accepted September 10, 2002
- *Cariboo-Chilcotin Land Use Plan Higher Level Plan Order*, effective January 31, 1996

- *Cariboo- Chilcotin Land Use Plan Integration Report*, April 6, 1998
- *CCLUP Biodiversity Conservation Strategy*, July 1996
- Cariboo Region Landscape Unit Planning Strategy, 1999
- CCLUP Caribou Strategy Committee Update, 1998
- Letter from the Minister of Forests to the Chief Forester, dated July 28, 1994, stating the Crown's economic and social objectives
- Memorandum from the Minister of Forests to the Chief Forester, dated February 26, 1996, stating the Crown's economic and social objectives regarding visual resources
- Letter from the Deputy Ministers of Forests, and Environment, Lands and Parks, dated August 25, 1997, conveying government's objectives regarding the achievement of acceptable impacts of biodiversity management on timber supply
- Memorandum from the Director of the Timber Supply Branch of the Ministry of Forests, dated December 1, 1997, titled Incorporating Biodiversity and Landscape Units in the Timber Supply Review
- *Forest Practices Code of British Columbia Act*, consolidated to March, 2001
- *Forest Practices Code of British Columbia Act Regulations and Amendments*, current as of April 2001
- Forest Practices Code of British Columbia Guidebooks, British Columbia Forest Service (BCFS) and Ministry of Water, Land and Air Protection (MWLAP)
- Technical information provided through correspondence and communication among staff from the BCFS and MWLAP
- *Landscape Unit Planning Guide*, BCFS and MWLAP, March 1999
- Weldwood's *Fish, Forest and Wildlife Management Plan* (FFWMP)

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester to consider biophysical as well as social and economic information in AAC determinations. A timber supply analysis, and the inventory and growth and yield data used as inputs to the analysis, typically form the major body of technical information used in AAC determinations. Timber supply analyses and associated inventory information are concerned primarily with biophysical factors—such as the rate of timber growth and definition of the land base considered available for timber harvesting—and with management practices.

However, the analytical techniques used to assess timber supply are necessarily simplifications of the real world. There is uncertainty about many of the factors used as inputs to timber supply analysis due in part to variations in physical, biological and social conditions, although ongoing science-based improvements in the understanding of ecological dynamics will help reduce some of this uncertainty.

Furthermore, technical analytical methods such as computer models cannot incorporate all of the social, cultural and economic factors that are relevant when making forest management decisions. Therefore, technical information and analysis do not necessarily provide complete answers or

solutions to forest management problems such as AAC determinations. The information does, however, provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information required to be considered in AAC determinations.

In determining the AAC for TFL 5, I have considered known limitations of the technical information provided, and I am satisfied that the information provides a suitable basis for my determination.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining AACs for timber supply areas (TSAs) and TFLs. Section 8 is reproduced in full as Appendix 1.

In accordance with Section 23(3) of the *Interpretation Act*, the deputy chief forester is expressly authorized to carry out the functions of the chief forester which include those required under Section 8 of the *Forest Act*.

The chief forester has expressed the importance of consistency of judgement in making AAC determinations. I also recognize the need for consistency of approach. I have observed the chief forester during a number of previous AAC determinations and am familiar with the guiding principles that the chief forester has employed in making AAC determinations. I find these principles to be reasonable and appropriate and I have adopted them as described below in making my AAC determination for TFL 5.

Guiding principles for AAC determinations

Rapid changes in social values and in our understanding and management of complex forest ecosystems mean that there is always some uncertainty in the information used in AAC determinations. When a large number of determinations are made for many forest management units over extended periods of time, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainty. To make his approach in these matters explicit, the chief forester has compiled a set of guiding principles for AAC determinations. I have reviewed these principles and find them to be reasonable, and thus I have adopted and applied them as deputy chief forester in AAC determinations for TFLs. These principles are set out below. If in some specific circumstance I believe it is appropriate to deviate from these principles, I will provide a detailed reasoning in the considerations that follow.

Two important ways of dealing with uncertainty are:

(i) minimizing risk, in respect of which in making AAC determinations, I consider the uncertainty associated with the information before me, and attempt to assess the various potential current and future social, economic and environmental risks associated with a range of possible AACs; and

(ii) re-determining AACs frequently, to ensure they incorporate current information and knowledge, a principle that has been recognized in the legislated requirement to re-determine AACs every five years. The adoption of this principle is central to many of the guiding principles that follow.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, I attempt to reflect as closely as possible operability and forest management factors that are a reasonable extrapolation of current practices. It is not appropriate to base my decision on unsupported speculation with respect either to factors that could work to increase the timber supply—such as optimistic assumptions about harvesting in unconventional areas, or using unconventional technology, that are not substantiated by demonstrated performance—or to factors that could work to reduce the timber supply, such as integrated resource management objectives beyond those articulated in current planning guidelines or the *Forest Practices Code of British Columbia Act* and its associated regulations (the Forest Practices Code).

The *Forest Practices Code of British Columbia Regulations* were approved by the Lieutenant Governor in Council on April 12, 1995, and released to the public at that time. The *Forest Practices Code of British Columbia Act* was brought into force on June 15, 1995.

Although the Forest Practices Code has been fully implemented since the end of the transition period on June 15, 1997, the timber supply implications of some of its provisions, such as those for landscape-level biodiversity, still remain uncertain, particularly when considered in combination with other factors. In each AAC determination the chief forester takes this uncertainty into account to the extent possible in the context of the best available information. In making my determination for TFL 5, as deputy chief forester, I have followed the same approach.

More recently, on November 21, 2002, government passed the new *Forest and Range Practices Act*, which is expected to ultimately replace the *Forest Practices Code of British Columbia Act*. As the timber supply implications of this new Act and any pursuant regulations become clear and measurable, they will be accounted for in AAC determinations. Uncertainties will continue to be handled as they were under the previous legislative regime.

As British Columbia progresses toward completion of strategic land-use plans, the timber supply impacts associated with the land-use decisions resulting from the various planning processes are important to AAC determinations. Where specific protected areas have been designated by legislation or by order in council, these areas are no longer considered to be part of the timber harvesting land base or to contribute to the timber supply in AAC determinations.

Because the outcomes of planning processes are subject to significant uncertainty until formal approval by government, it has been and continues to be the position of the chief forester that in determining AACs it would be inappropriate to attempt to speculate on the timber supply impacts that will eventually result from land-use decisions that have not yet been taken by government. I consider this approach to be reasonable and appropriate. Like the chief forester, I will therefore not take into account the possible impacts of existing or anticipated recommendations made by such planning processes, nor attempt to anticipate any action the government could take in response to such recommendations.

Moreover, even where government has made a formal land-use decision, it may not always be possible to fully analyze and account for the consequent timber supply impact in a current AAC determination. In many cases, government's land-use decision must be followed by a number of detailed implementation decisions. For example, a land-use decision may require the establishment of resource management zones and resource management objectives and strategies for these zones. Until such implementation decisions are made, it would be impossible to fully assess the overall impacts of the land-use decision. Nevertheless, the legislated requirement for

five-year AAC reviews will ensure that future determinations address ongoing plan implementation decisions.

A number of intensive silviculture activities have the potential to affect timber supply, particularly in the long term. As with all components of an AAC determination, like the chief forester, I require sound evidence before accounting for the effects of intensive silviculture on possible timber supply. Nonetheless, I will consider information on the types and extent of planned and implemented practices as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of any timber supply effects of intensive silviculture.

Some have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are not complete, but this will always be true where information is constantly evolving and management issues are changing. Moreover, in the past waiting for improved data created the extensive delays that resulted in the urgency to re-determine many outdated AACs between 1992 and 1996. In any case, the data and models available today are improved from those available in the past, and will undoubtedly provide for more reliable determinations.

Others have suggested that, in view of data uncertainties, the chief forester should immediately reduce some AACs in the interest of caution. However, any AAC determination made by the chief forester or myself must be the result of applying our individual judgement to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I have made allowances for risks that arise because of uncertainty.

Overall, in making this AAC determination, as the deputy chief forester, I am mindful of the mandate of the Ministry of Forests as set out in Section 4 of the *Ministry of Forests Act*, and of the chief forester's responsibilities under the *Forest Practices Code of British Columbia Act* and the *Forest Act*.

Guiding principles with respect to First Nations

With respect to First Nations' issues, I am aware of the Crown's legal obligations, particularly as clarified in judgements by the Supreme Court of Canada and the British Columbia Court of Appeal. The AAC that I have determined should not in any way be construed as limiting obligations under these decisions, and in this respect it should be noted that my determination does not prescribe a particular plan of harvesting activity within TFL 5.

The British Columbia Court of Appeal decided in March 2002 the Crown has an obligation to consult with First Nations with respect to asserted rights and title in a manner proportional to the apparent strength of the interests. As a matter of course, I consider any information brought forward by all parties respecting First Nations' interests. In particular I consider information related to actions taken to protect interests, including operational plans that describe forest practices designed to address First Nations' interests. In this context, I re-iterate that my AAC determination does not prescribe a particular plan of harvesting activity, nor does it involve allocation of the wood supply to any particular party.

Subsequent to a determination, if I become aware of information respecting First Nations interests that would substantially alter my understanding of relevant circumstances, I may revisit my determination sooner than as required by the Forest Act.

Consideration of Factors as Required by Section 8 of the *Forest Act*

Section 8 (8)

In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

First Nations considerations

The Nazko, Red Bluff (Lhtako) and Lheidli Tenneh First Nations use portions of TFL 5 for traditional purposes. The Nazko First Nation has traditionally used the land west of the Fraser River, while the Red Bluff and Lheidli Tenneh First Nations have focussed their traditional use east of the Fraser River. Aboriginal interests on the TFL include the continued ability to hunt, fish, and gather plants for food and medicinal purposes, and the maintenance of a cultural and spiritual link to the land. Such interests have been documented in a number of traditional use studies and in a cultural heritage overview prepared for the Cariboo Forest Region.

Both the Lheidli Tenneh and Nazko First Nations have lodged statements of intent with the British Columbia Treaty Commission that include area within the TFL. The statement of intent lodged by the Lheidli Tenneh First Nation includes the TFL 5 landbase in its entirety. The statement of intent lodged by the Nazko First Nation includes the approximately 30 percent of the TFL situated west of the Fraser River. Both the Lheidli Tenneh and Nazko First Nations are at the Agreement-in-Principle stage of treaty negotiations. To my knowledge the Red Bluff First Nation has not lodged a statement of intent with the British Columbia Treaty Commission.

With respect to the timber supply analysis, BCFS district staff sent the Lheidli Tenneh, Nazko and Red Bluff First Nations a letter dated July 15, 2002 along with copies of the TFL 5 information package and timber supply analysis report. The First Nations were invited to review the documents and provide written comments related to how their aboriginal interests might be affected by my AAC determination. The First Nations were also invited to contact forest district staff if they desired a presentation on the information. District staff indicated that there were no written or verbal responses or requests for meetings or presentations.

I note that the licensee regularly sends referrals regarding proposed Forest Development Plans (FDP) and FDP amendments to all three First Nations depending on where cut blocks are proposed within the TFL. The licensee has primarily corresponded with the Nazko First Nation. During the development of the licensee's recent Pest Management Plan, discussions with the Nazko First Nation led to the creation of the Nazko Protocol. This protocol specifies the procedures to be followed during future referrals. The licensee has entered into discussions with the Lheidli Tenneh First Nation to develop a similar protocol for information sharing and referrals regarding FDPs.

I note the licensee continues to complete Archaeological Impact Assessments as directed by the District Manager and has committed to stop harvesting or road building operations and notify BCFS staff if previously unidentified archaeological resources are discovered. The licensee has also discussed with local First Nations the handling of Archaeological Impact Assessment (AIA) information and the management of Culturally Modified Trees located near the Punchaw Trail.

In previous contact with BCFS staff, local First Nations have expressed employment of band members and economic benefit from forestry activities as priorities. I understand the licensee has tried to provide economic opportunities to local First Nations when reasonable economic opportunities arise. The licensee leases land from the Red Bluff First Nation for part of its plywood plant log yard. Lease payments are in the form of both money and firewood. Red Bluff band members have brushed problem areas on TFL 5 for the licensee, and the licensee has contracted some planning and road pre-development to the Nazko First Nation. The Nazko First Nation has expressed interest in doing manual brushing for Weldwood.

I believe that consultations between the licensee and First Nations related to operational planning offer a good opportunity for sharing information. With this information, harvesting operations can be located, designed and timed to protect habitat, riparian areas and food and plant sites as much as possible within the constraints presented by attempts to mitigate the impact of the mountain pine beetle epidemic. The information available to me suggests that harvesting can be compatible with continued traditional use of the land base.

At this time, the nature, scope, and geographical location of potential aboriginal rights and title within TFL 5 remain inconclusive. If further information on aboriginal interests becomes available during the term of the new AAC, I will consider it in a future determination, or re-examine this determination, if warranted. I encourage continued consultation with First Nations on operational activities, as is normal practice in the TFL, to enable design and timing of forest operations to minimize and hopefully eliminate negative impacts on First Nations' interests.

As I have noted in my 'Guiding principles with respect to First Nations,' the AAC that I determine should not in any way be construed as limiting the Crown's obligations as described in court decisions with respect to aboriginal rights and title. The AAC that I determine does not prescribe any particular plan of harvesting activity within TFL 5 by requiring any particular area to be harvested or not harvested.

As I make my AAC determination, I am mindful of the responsibility of other statutory decision-makers to administer the determined AAC in a manner consistent with other legislation and with relevant decisions of the courts respecting the interests of First Nations.

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

Mountain Pine Beetle Epidemic

- the mountain pine beetle

The mountain pine beetle (MPB), *Dendroctonus ponderosae* Hopkins (*Coleoptera*: *Scolytidae*) is widely considered to be the most damaging of all the insects that attack lodgepole pine in western Canada. The insect is a small, cylindrical-shaped bark beetle.

Generally, the mountain pine beetles fly during mid-late summer seeking mature - overmature lodgepole pine trees. Upon locating a suitable host, females bore through the bark and start construction of an egg gallery in the sapwood and inner bark near the base of the tree. If the tree is young and growing vigourously, it can flood the beetle out with resin. Lodgepole pine approximately 80 years old or greater usually cannot produce enough resin to evict the beetle. If not evicted, the beetle emits a pheromone attractant to induce a mass attack that overwhelms the host tree.

The beetle introduces fungi that produce blue stain in the sapwood of the tree. These fungi interrupt the flow of water to the crown of the tree reducing the production of resin. Brood over-winter as larvae and feed on the inner bark of the tree. Unless they are killed by very cold temperatures over winter, or they are removed from the site by harvesting, the brood will emerge as adults during the next growing season and attack neighbouring susceptible host trees.

More specifically, brood will be killed by early fall temperatures of -18° Celsius but can survive to -37° during winter. However, several days of winter temperatures below -27° will kill a large portion of the population. Once the maturing larvae have resumed feeding in the spring they again become very susceptible to freezing temperatures. Since the impact of low temperatures is moderated by snow insulation, the snow pack can also be a critical factor to beetle survival.

It is a combination of the fungi retarding water flow, and beetle larvae eating the inner bark interrupting the flow of nutrients, that kills the tree during the second growing season after initial or 'green- attack'. The tree's foliage turns red in the late spring following attack. This is called 'red-attack'. In subsequent years the dead standing tree will loose its needles. This final stage is called 'grey-attack'.

More details of MPB's life cycle and devastating power in destroying forests are presented in Appendix 3 to this document, *Forest Insect and Disease Survey, Forest Pest Leaflet No. 76*, a Forestry Canada publication.

- *mapping the infestation and its expansion*

The method for identifying and describing the extent of the infestation on TFL 5 and the surrounding Quesnel TSA is an aerial survey sketch-mapping process. This process has been used in the Cariboo Forest Region (CFR) since 1980 and conforms to the specifications outlined in the CFR's pest survey manual (Hamm 1995). While 'red-attack' and 'grey-attack' can be mapped using this approach; the mapping of 'green-attack' necessitates ground surveys. Areas of attack are delineated into one of three severity classes—light (1-10% of trees within the polygon impacted), moderate (11-30%) and severe (31% or more). In the case of Timber Supply Areas, these data are combined with inventory data to estimate volume lost to the epidemic. In the case of the TFLs within the Region, the average volume per tree for the forest district and the percentage of trees (or number) within the attacked stand were used to estimate volume per hectare killed.

Staff in the CFR most recently conducted an aerial pest survey of TFL 5 and surrounding Quesnel TSA in 2002. This survey mapped 168 887 cubic metres of current 'red-attack' trees within the TFL spread across 9 436 hectares. Fifty-eight percent of those hectares were characterized as having experienced light attack, 29 percent moderate attack and 13 percent severe attack. For reference, the total area of the TFL is 34 221 hectares and the total merchantable inventory is approximately 4.3 million cubic metres. According to the licensee's Information Package, 42 percent of this inventory is composed of lodgepole pine-leading stands.

The MPB infestation within the neighbouring Quesnel TSA and Prince George Forest District has increased exponentially since 1999. In the Quesnel TSA the total area mapped with 'red-attack' increased from 19 505 hectares in 1999 to 84 083 hectares in 2001 and 369 371 hectares in 2002. The pattern is similar in the Prince George Forest District; the total area mapped with 'red-attack' increased from 5 409 hectares in 1999 to 29 614 hectares in 2001 and 146 739 hectares in 2002. The MPB infestation on TFL 5 has started to increase dramatically. If the current pattern of mild winters persists, Forest Service Region and District staff and Forest Practices Branch forest health specialists expect the MPB problem on TFL 5 to mirror the explosive situation in the neighbouring Quesnel TSA and the Prince George Forest District.

I accept that the recent data of TFL 5 and the survey data from the neighbouring TSA and Forest District represent the best available information regarding the MPB epidemic within the TFL. TFL 5 has experienced a mild fall. Unless severe and prolonged cold temperatures occur over winter, or freezing temperatures occur next spring, I expect rapid expansion will continue into 2003 putting all susceptible lodgepole pine within the TFL at extreme risk of being killed.

- the resource at risk

The licensee has constructed a MPB salvage and control matrix, which it has presented in Management Plan No. 10. Using the proportion of a forest stand that is lodgepole pine and stand age the licensee has classified susceptible stands into three risk categories—high, moderate and low. The licensee deemed stands composed of 40 percent or more of lodgepole pine greater than 79 years of age to be at high risk of attack. Stands with a lower percentage of lodgepole pine, or less than 79 but greater than 60 years of age, were classified as moderate or low risk. When the management plan was submitted, 1 428 314 cubic metres of lodgepole pine volume was classified as high risk, with a further 216 979 cubic metres as moderate risk and 145 700 cubic metres as low risk. The total volume at risk is quite similar in magnitude to the total standing merchantable inventory contained within the 9 436 hectares that were identified in the 2002 overview survey as having experienced some degree of 'red-attack'. If the recent pattern of warm winters continues, the vast majority of the high risk pine and some of the moderate and low risk pine will be attacked over the next five years. It is the considered opinion of Forest Practices Branch, Forest Health specialists that unless harvested in a timely manner, in all likelihood, approximately 1.5 to 1.6 million cubic metres of pine will be lost to MPB over the next three to five years. Based on the evidence available, I concur with this opinion.

- management strategy

The licensee proposes to manage the MPB epidemic aggressively within the TFL. Harvesting will be prioritized according to its MPB salvage and control matrix. 'Green attack' stands will be identified via ground surveys and will be given highest priority for logging along with adjacent high risk lodgepole pine stands. Secondly, 'red-attack' and 'grey-attack' timber will be logged. Finally blowdown will be salvaged to minimize the loss of merchantable timber.

'Green attack' is targeted first to remove MPB from the site before they can spread to neighbouring trees during the next growing season. 'Red and grey attack' are prioritized second to ensure dead trees are harvested while they are still structurally sound and have some economic value. According to District Forest Service staff, the licensee has followed this strategy since the outbreak of this epidemic.

It is my explicit expectation that the licensee will utilize the AAC that I have determined in this rationale according to its MPB salvage and control strategy.

Reasons for decision

I have considered the information discussed throughout this document, and I have reasoned as follows.

As mentioned in the section titled '*the resource at risk*', approximately 1.5-to-1.6 million cubic metres is subject to extreme risk of attack by mountain pine beetle unless the epidemic is halted by extremely cold weather this winter, freezing temperatures this spring, or some other unforeseen factor. It is now late January and I believe it is very unlikely that sufficiently cold temperatures will occur during the remaining six weeks of winter in the North Cariboo. I believe that the

epidemic will continue unabated into 2003. To maximize the recovery of economic value from this resource, and assuming killed trees remain structurally sound for approximately three years, I have reasoned that susceptible pine should be logged over a five-to-six year period. Often it will be necessary to log other species as well as the pine within the attacked or susceptible stands due to risk of windthrow, mill profile requirements and engineering considerations. I have determined that an AAC of 300,000 cubic metres is required to facilitate this emergency harvest.

The impact of accelerated harvest on post-epidemic timber supply can be estimated using a harvest flow scenario provided by the licensee. The licensee modelled the harvest of all high-risk pine during the next five to 10 years. The licensee modelled a harvest flow of 317 600 cubic metres per year over the first five years, followed by 122 800 cubic metres during the second five years and 99 600 cubic metres from the second through fifth decades. In the sixth and subsequent decades timber supply increases as second-growth timber becomes available. Clearly an AAC of 300 000 cubic metres per year will significantly impact timber supply in the short term, but if the susceptible pine is not harvested, based on my current understanding of the epidemic, it would be lost to the MPB in any case.

If extreme cold temperatures are experienced later this winter or in subsequent winters resulting in collapse of the MPB population I will examine whether the AAC for TFL 5 should be re-determined before the scheduled five year deadline.

Determination

I have considered and reviewed all the factors documented above, including the risks and uncertainties of the information provided. It is my determination that an AAC of 300 000 cubic metres is necessary and appropriate for the next five years on TFL 5. This represents an increase of 144 percent from the current AAC.

This determination is effective January 1, 2003 and will remain in effect until a new AAC is determined, which must take place within five years of the date of this determination, unless that date is formally postponed in the meantime under authority of Section 8 of the *Forest Act*.

If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the five years required by legislation. I am particularly mindful of the First Nations issues I have discussed in this rationale and I will remain attuned to progress with relevant initiatives. If government should choose to make land-use decisions that prohibit harvesting on any of TFL 5, I will consider a temporary or permanent reduction to the AAC at that time. Finally and most significantly, if the mountain pine beetle epidemic on TFL 5 should significantly abate for any reason, I will re-visit the AAC sooner than as required by the *Forest Act*.

Implementation

I have significantly increased the AAC for TFL 5 for only one reason, and that is to facilitate harvesting of timber that would otherwise be destroyed by the mountain pine beetle epidemic. I am aware that significantly accelerated harvesting over the coming five years will almost certainly lead to a much reduced AAC for subsequent years. I am therefore assuming that the licensee will focus its harvesting as much as possible on timber that would otherwise be lost to the beetles.

I am relying on the licensee to operate according to its mountain pine beetle salvage and control matrix referred to earlier under *' management strategy'*. This means that first priority should be given to removing 'green-attack' lodgepole pine identified through ground surveys. Second priority should be given to harvesting 'red-attack' and 'grey-attack' lodgepole pine. Because cutblock boundaries will be designed to reflect engineering realities and to minimize the risk of blowdown, I recognize that minor amounts of other species will be harvested as well.

Over the coming five years, I request that the Forest District Manager continue to track the severity of the beetle epidemic on TFL 5. I ask the District staff to apprise me of any significant change in the beetle population and the damage it is inflicting, and to let me know if harvesting operations are not substantially in accordance with the above priorities.

Finally, I ask the licensee to let me know if it finds at any time that the AAC of 300,000 cubic metres is no longer needed to minimize losses to the beetle epidemic.

Ken Baker

Ken Baker
Deputy Chief Forester

January 23, 2003

Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, reads as follows:

Allowable annual cut

8. (1) The chief forester must determine an allowable annual cut at least once every 5 years after the date of the last determination, for

(a) the Crown land in each timber supply area, excluding tree farm licence areas, community forest areas and woodlot licence areas, and

(b) each tree farm licence area.

(2) If the minister

(a) makes an order under section 7 (b) respecting a timber supply area, or

(b) amends or enters into a tree farm licence to accomplish the result set out under section 39 (1) (a) to (d),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

(c) within 5 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and

(d) after the determination under paragraph (c), at least once every 5 years after the date of the last determination.

(3) If

(a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and

(b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 5 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(3.1) If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

(a) by written order may postpone the next determination under subsection (1) to a date that is up to 10 years after the date of the relevant last determination, and

(b) must give written reasons for the postponement.

(3.2) If the chief forester, having made an order under subsection (3.1), considers that because of changed circumstances the allowable annual cut that was determined under subsection (1) for a timber supply area or tree farm licence area is likely to be changed significantly with a new determination, he or she

(a) by written order may rescind the order made under subsection (3.1) and set an earlier date for the next determination under subsection (1), and

(b) must give written reasons for setting the earlier date.

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In determining an allowable annual cut under subsection (1) the chief forester may specify portions of the allowable annual cut attributable to

(a) different types of timber and terrain in different parts of Crown land within a timber supply area or tree farm licence area, and

(b) different types of timber and terrain in different parts of private land within a tree farm licence area,

(c) [Repealed 1999-10-1.]

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine a rate of timber harvesting for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

(iii) silviculture treatments to be applied to the area,

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities,

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

1998-29-2; 1999-10-1; 2000-6-2; 2002-25-21.

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Appendix 2: Section 4 of the *Ministry of Forests Act*

Section 4 of the *Ministry of Forests Act* (consolidated 1988) reads as follows:

Purposes and functions of ministry

4. The purposes and functions of the ministry are, under the direction of the minister, to

(a) encourage maximum productivity of the forest and range resources in British Columbia;

(b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;

(c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are co-ordinated and integrated, in consultation and co-operation with other ministries and agencies of the government and with the private sector;

(d) encourage a vigorous, efficient and world competitive timber processing industry in British Columbia; and

(e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

Appendix 3: Extract from Unger, L. 1993. Mountain Pine Beetle. Forestry Canada, Forest Insect and Disease Survey, Forest Pest Leaflet No. 76, 7p

Introduction

The mountain pine beetle, *Dendroctonus ponderosa*, a native pest, is the most serious insect enemy of mature pines in western Canada. In British Columbia, major outbreaks occurred in all areas with a significant pine component, except for the northern quarter of the province. Since the first recorded infestations in 1913, in the Okanagan and Merritt areas, major infestations have occurred in Kootenay National Park and the Chilcotin Plateau in the 1930s, on Vancouver Island during the 1940-50s, near Takla and Babine lakes in the 1950s, and through much of the southern interior, Chilcotin Plateau and the Skeena and Nass river areas in the late 1970s and 1980s. Well over 500 million trees were killed by the mountain pine beetle during the past 80 years.

Outbreaks generally last 8-10 years and severely deplete the pine component of forest stands; trees with a diameter greater than 25 cm are particularly susceptible. Extensive mountain pine beetle infestations hasten forest succession, change the age and diameter distribution of the pine components of the forest, and reduce aesthetic values. Infestations can also cause marketing and operational problems and environmental concerns when large volumes of dead pine are harvested either for control or salvage purposes.

Large reserves of mature pine forest are always at risk in areas climatically favorable for the beetle. Good access to susceptible forests is needed so that preventative measures can be taken and so that infested stands can be quickly treated.

Hosts

The mountain pine beetle is distributed throughout British Columbia north to 56° latitude. Infestations have been recorded from sea level to the highest elevations where the host species grow. Native hosts include lodgepole pine (*Pinus contorta*), ponderosa pine (*Pinus ponderosae*), whitebark pine (*Pinus albicaulis*), and limber pine (*Pinus flexilis*). Some exotic pines may also be attacked. Occasionally non-host trees such as Engelmann spruce (*Picea engelmannii*) are attacked, but beetle populations do not persist in these occasional hosts.

Description and Life History

Adults are cylindrical, 3.7 to 7.5 mm long; teneral adults are light creamy-tan in color, changing to black when mature.

Eggs are pearly white, about 1 mm in size, and are laid singly in niches on both sides of the parent gallery.

Larvae are white legless grubs with red-brown heads, about 5 mm long in the fourth (final) instar.

Pupae are white at first, changing to light brown, about 5 mm long, with the external characteristics of the adult beetle visible.

The life cycle of the mountain pine beetle varies considerably. The normal cycle takes one year to complete; however, during warmer than average summers, parent adults may re-emerge and establish a second brood in the same year. Conversely, in cooler summers or at higher elevations, broods may require two years to mature. These variations in the life cycle may result in rapid increases in population levels, or conversely, sharp population decreases.

Beetle flights normally occur throughout July and into August, and generally peak in late July. Upon locating a suitable host, females bore through the bark to the phloem and cambium region, and start construction of the egg gallery, usually on the lower 5 m of the bole. The first females that attack a tree emit an aggregating pheromone which attracts mainly males. The males in turn emit pheromones attracting additional females. This leads to a mass attack which overcomes the tree's resistance. The egg galleries are usually about 30 cm long but occasionally they may reach 90 cm. They extend upward parallel to the grain and usually score both bark and sapwood. Eggs are laid in individual niches 0.5 cm apart along both sides of the gallery, and are tightly packed with frass. Eggs generally hatch in 10-14 days. Larvae feed on the phloem in individual mines extending, under uncrowded conditions, about 13 cm at right angles to the egg gallery. Broods overwinter mainly as larvae. Larval development is completed in early summer of the following year. When larvae mature, they excavate an oval chamber in which they turn into pupae. Following a short pupation period, pupae become adults. Newly formed adults, called teneral adults, spend a brief period feeding under the bark before the mature adults emerge by boring through the bark and fly to living trees to commence another cycle.

Fungi, yeasts, bacteria and other microorganisms associated with the beetle are carried by them into the tree. Some of these microorganisms are pathogenic to the tree or the bark beetle, while others are beneficial to the beetle. Fungi, which are commonly introduced by the beetle and produce blue stain in the sapwood, commence growth in the phloem and xylem soon after the beetles start their galleries. As the fungi become established they interrupt the flow of water to the crown and reduce the tree's pitch flow, which is its main defense mechanism against beetle attack. Successfully established bluestain fungi will also retain moisture in the sapwood and

prevent excessive dehydration of the phloem, which is essential for brood survival. The combined action of the beetle and fungi kills the tree. Teneral adults need to feed on fungal fruiting bodies to mature, and specialized mouth parts of the beetle ensure that emerging beetles carry fungi to living trees.

Damage and Detection

Infested trees can be detected through crown and external symptoms, but the mountain pine beetle can only be positively identified (and the success of an attack can only be positively determined) by looking under the bark.

External evidence of beetle infestation on the bole usually consists of (i) pitch tubes on the stem where beetles have entered the tree, and (ii) boring dust at the base of the tree.

The color of the pitch tube often indicates the success or failure of the beetle attack. Scattered pitch tubes that are whitish in color indicate that the tree has repelled or killed the beetle by pitch exudation. In contrast, numerous reddish brown pitch tubes usually indicate that the attack has succeeded. However, pitch tubes remain pliable for several years, so soft pitch tubes do not necessarily mean that a tree is currently under attack. Pitch exudation may not occur during periods of drought or when trees are stressed due to root rot or other reasons. However, trees that have been recently and successfully infested will have dry boring dust in bark crevices and at the base of the tree. The boring dust is produced only during the initial stage of gallery construction and, depending on weather conditions, it may rapidly become inconspicuous. Woodpecker activity will often be greatly increased in infested areas, and woodpeckers will leave numerous pecking holes and may remove sections of the bark.

Characteristic symptoms under the bark include a vertical parent gallery with a slight J-like hook at the bottom and evenly spaced larval galleries extending at right angles from the parent gallery. Galleries are tightly packed with sawdust. The phloem will be dried out and brownish, and the sapwood will usually be stained a bluish color due to the fungi associated with the beetle.

Tree foliage begins to dry out as soon as the conduction of water up the tree is interrupted. As a result, the color of the foliage on infested trees gradually changes from bright to dull green. This early symptom in the lower crown will often become visible 2-3 months after attack. However, more distinct color changes occur during the onset of the growing season the spring following attack. Most lodgepole pine change from yellowish green to an orangey red by July and rusty brown by late summer. At this time most of the beetles will have left the tree. Other tree species display varying color patterns: ponderosa pine seldom turns red but develops more of a straw color, while white pine tends to become bright red. With time, retained foliage color becomes more dull, and most of the foliage drops in 2-3 years; this will vary from species to species and with weather conditions. These rapid and distinct color changes are used to schedule aerial mapping of recently attacked trees.

Beetles Associated with Mountain

A number of secondary beetles are associated with mountain pine beetle and at times these secondary beetles make diagnosis of the causal agent of tree mortality difficult. Secondary bark beetles generally do not successfully establish in healthy, vigorous trees.

Several engraver beetles (*Ips pini, I. latidens* and *I. mexicanus*) attack fresh windfelled trees, logging residue, and uninfested portions of the boles of trees killed by mountain pine beetle, as well as trees of low vigor caused by root rots, stem diseases, defoliation, etc. Occasionally, however, they may become destructive in apparently healthy trees, but infestations are usually short. Since a portion of the population overwinters in the duff, extreme cold winter temperatures,

which can devastate mountain pine beetle population, are much less destructive to the Ips beetles. As a result, these engraver beetles, which increased along with the mountain pine beetle population, may continue at epidemic numbers for 1 or 2 years.

Ambrosia beetles (*Trypodendron spp.* and *Gnathotrichus spp.*) are wood or pinhole borers that infest recently killed trees, fresh slash, and downed material. Infestation by these beetles can be recognized by the small piles of white boring dust surrounding the points of entry into the wood or around the lower portion of the stem.

The red turpentine beetle (*Dendroctonus valens*) bores under bark near the root crown and produces large reddish brown pitch tubes around the base of the bole. This is the largest of the *Dendroctonus* species: larvae are up to 12 mm long, and the reddish coloured adults generally are between 5 and 9 mm.

The lodgepole pine beetle (*Dendroctonus murrayanae*) attacks the lower metre of the stem forming an irregular vertical gallery with eggs laid in groups of 20-50 along both sides of the gallery. Larvae feed gregariously. Larvae and the reddish brown adults are only slightly smaller than the same stages of the mountain pine beetle.

Sour sap bark beetles (*Hylurgops* and *Hylastes spp.*) usually attack the stem near and below duff level. Adults are black or reddish, but tend to be shorter (3-6 mm) and more slender than mountain pine beetle.

Management

Prevention

The first step in prevention of mountain pine beetle outbreaks is to prioritize stands for preventive maintenance. To this end, risk and susceptibility rating systems have been developed combining the stand parameters associated with beetle infestations and the beetle pressure on a stand. Susceptibility increases in stands (i) with trees over 60 years of age (moderate susceptibility) and with trees over 80 years of age (high susceptibility), (ii) with trees over 25 cm in diameter, (iii) with a high pine component, (iv) with a density between 750 and 1500 trees/ha, and (v) at lower altitudes and latitudes. The risk of an infestation developing within a stand is based on its distance to the nearest infestation and its level of current attack. For example, stands within 3 km of an active infestation and with more than 100 trees already attacked would be considered at risk. Risk factors can change dramatically within a year, while stand susceptibility changes gradually over a number of years.

Silvicultural treatments which help to reduce stand susceptibility include (i) reducing stand density to below 500 trees/ha, (ii) establishing an age and tree size mosaic within a stand or drainage, (iii) implementing a shorter rotation period, and (iv) establishing a species mix within a stand. The effectiveness of these measures may be reduced considerably in the presence of high beetle pressure, however.

Aerial surveillance,especially of moderate to high risk stands, will detect the initial phases of beetle invasion and allow for the early implementation of effective control measures.

Ground surveys should be conducted when pockets of discolored trees first appear in a stand to verify the causal agent and the status of the brood.

Applied Control

A variety of applied controls can be utilized, depending upon the extent of the beetle problem. In conjunction with controls, synthetic aggregating pheromones can be used effectively to concentrate beetle attack. This greatly improves the efficiency in locating newly attacked trees for

follow-up treatment actions, or for containing most of an attack within a given harvesting area. Under specific conditions, mass trapping of beetles may prevent small local beetle populations from increasing or it may even reduce these populations to endemic levels. However, the effect of trapping becomes negligible when the beetle populations reach epidemic proportions.

During the initial phases of an infestation when only small infestation pockets are present, individual trees containing beetle brood can be treated by felling and burning, applying an appropriate silvicide to infested trees within 24 days of attack, application of a registered insecticide to the bole of infested trees just prior to beetle emergence, and the use of pheromone-baited, lethal (insecticide-treated) trap trees. Permits are required for such work in B.C. forests.

At intermediate infestation levels (up to about 100 trees per patch), small-patch logging can be used if good access is in place, and if beetle attack is concentrated naturally or through the use of pheromone baits. Beyond the intermediate stage, and when infestations exceed 10 ha, control becomes increasingly more difficult. In larger infestations the rate and range of beetle dispersion increases and any effective control program will require very extensive ground surveys to locate the green, newly attacked trees. Consequently, the only practical control measure at this stage is clearcutting well beyond the areas having red trees in order to remove trees containing beetles.

Natural Control

Resin flow and predation and parasitism are relatively ineffective in large infestations, but can be important in maintaining populations at endemic levels.

Resin flow is the tree's active defense mechanism against beetle invasion. It is effective in flushing out beetles (pitchout) or destroying eggs only when attack density is low, or when a high attack level is spread over a number of days. During periods of tree stress, such as drought, resin flow may be greatly reduced.

Predation and parasitism play a significant role in beetle population dynamics. Woodpeckers are the most conspicuous predators as they remove bark in search of beetle brood, in the process of bark removal they also reduce the survival rate of the remaining insects due to desiccation. Perching birds also consume large quantities of flying beetles. Some of the more commonly encountered insect predators include the *clerid* (checkered) beetles, and *Diptera* (various true fly species). Several species of wasps occasionally kill large numbers of mountain pine beetles.

Temperature can be an important factor in determining population levels during the course of an infestation. Optimum under-the-bark temperatures for brood development are between 20 and 26°C. Cool summers may delay beetle flight and subsequently slow brood development, which can affect overwintering brood survival. Early fall temperatures of -18° will kill brood, while even less severe temperatures will kill eggs and larvae in the first three larval instars. The most cold-hardy stage, late-instar larvae, when conditioned for cold temperatures, cannot withstand temperatures below -37°; temperatures of -27° persisting for several days will kill a large portion of the population. Once the maturing larvae have resumed feeding in the spring they again become very susceptible to freezing temperatures. Since the impact of low temperatures is moderated by tree size, bark thickness and snow insulation, the duration of the cold period and snow pack is a critical factor to beetle survival.

Intraspecific competition affects brood production. High attack densities result in a more rapid rate of phloem desiccation; consequently, fewer adults emerge per unit area of bark surface. The adults which do emerge will also have a reduced capacity for egg production. Optimum attack densities appear to be between 3 and 10 per 1000 centimetres squared of lodgepole pine bark surface area, but it depends upon the thickness of phloem (food source). Food supply (phloem) is a main factor in regulating beetle populations. Beetles initially select larger diameter trees with

thick phloem, in which populations can increase rapidly. As an infestation progresses and the larger diameter trees have already been killed, smaller trees with thinner phloem are attacked resulting in smaller broods. These trees will also dry out faster, leading to increased brood mortality. In general, when beetles attack trees under 25 centimetres in diameter, the number of progeny emerging will progressively become less with decreasing diameter.

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Documents attached:

Appendix 4: Minister of Forests' letter of July 28, 1994

Appendix 5: Minister of Forests' memo of February 26, 1996

File: 10100-01

JUL 28 1994

John Cuthbert
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear John Cuthbert:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the clear responsibility for determining Allowable Annual Cuts, decisions with far-reaching implications for the province's economy. The *Forest Act* provides that you consider the social and economic objectives of the Crown, as expressed by me, in making these determinations. The purpose of this letter is to provide this information to you.

The social and economic objectives expressed below should be considered in conjunction with environmental considerations as reflected in the Forest Practices Code, which requires recognition and better protection of non-timber values such as biodiversity, wildlife and water quality.

The government's general social and economic objectives for the forest sector are made clear in the goals of the Forest Renewal Program. In relation to the Allowable Annual Cut determinations you must make, I would emphasize the particular importance the government attaches to the continued availability of good forest jobs and to the long-term stability of communities that rely on forests.

Through the Forest Renewal Plan, the government is taking the steps necessary to facilitate the transition to more value-based management in the forest and the forest sector. We feel that adjustment costs should be minimized wherever possible, and to this end, any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability.

.../2

Province of British Columbia
Minister of Forests
Parliament Buildings
Victoria, British Columbia
V8V 1X4

In addition to the provincial perspective, you should also consider important local social and economic objectives that may be derived from the public input on the Timber Supply Review discussion papers where these are consistent with the government's broader objectives.

Finally, I would note that improving economic conditions may make it possible to harvest timber which has typically not been used in the past. For example, use of wood from commercial thinnings and previously uneconomic areas may assist in maintaining harvests without violating forest practices constraints. I urge you to consider all available vehicles, such as partitioned cuts, which could provide the forest industry with the opportunity and incentive to demonstrate their ability to utilize such timber resources.

Yours truly,

Andrew Petter
Minister

Province of British Columbia
Ministry of Forests
OFFICE OF THE MINISTER

MEMORANDUM

File: 16290-01

February 26, 1996

To: Larry Pedersen
Chief Forester

From: The Honourable Andrew Petter
Minister of Forests

Re: The Crown's Economic And Social Objectives Regarding Visual Resources

Further to my letter of July 29, 1994, to your predecessor, wherein I expressed the economic and social objectives of the Crown in accordance with Section 7 of the *Forest Act*, I would like to elaborate upon these objectives as they relate to visual resources.

British Columbia's scenic landscapes are a part of its heritage and a resource base underlying much of its tourism industry. They also provide timber supplies that are of significant economic and social importance to forest industry dependent communities.

Accordingly, one of the Crown's objectives is to ensure an appropriate balance within timber supply areas and tree farm licence areas between protecting visual resources and minimizing the impact of such protection measures on timber supplies.

As you know, I have directed that the policy on management of scenic landscapes should be modified in light of the beneficial effects of the Forest Practices Code. In general, the new policy should ensure that establishment and administration of visual quality objectives is less restrictive on timber harvesting. This change is possible because alternative harvesting approaches as well as overall improvement in forest practices will result in reduced detrimental impacts on visually sensitive areas. Also, I anticipate that the Forest Practices Code will lead to a greater public awareness that forest harvesting is being conducted in a responsible, environmentally sound manner, and therefore to a decreased public reaction to its visible effects on the landscape. In relation to the Allowable Annual Cuts determinations that you make, please consider the effects that the new policy will have in each Timber Supply Area and Tree Farm Licence.

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In keeping with my earlier letter, I would re-emphasize the Crown's objectives to ensure community stability and minimize adjustment costs as the forest sector moves to more value-based management. I believe that the appropriate balance between timber and visual resources will be achieved if decisions are made consistent with the ministry's February 1996 report *The Forest Practices Code: Timber Supply Analysis*.

Finally, in my previous letter I had asked that local economic and social objectives be considered. Please ensure that local views on the balance between timber and visual resources are taken into account within the context of government's broader objectives.

Andrew Petter
Minister of Forests